An apparatus for detecting motion at a temporal intermediate position between a previous image and a next image has optimizing means (1) for optimizing a criterion function for candidate vectors, whereby the criterion function depends on data from both the previous and the next image. The motion is detected at the temporal intermediate position in non-covering and in non-uncovering areas. The apparatus according to the invention has means for detecting covering and uncovering areas (2) and has its optimizing means being arranged to carry out the optimizing at the temporal position of the next image in covering areas and at the temporal position of the previous image in uncovering areas.

10 Fig. 4

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